



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Remediation - Oak Ridge
761 Emory Valley Road
Oak Ridge, Tennessee 37830

October 25, 2017

Mr. John Michael Japp
Federal Facility Agreement Manager
Oak Ridge Office of Environmental Management
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Japp

Explanation of Significant Differences for the Record of Decision for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act of 1980 Waste, Oak Ridge, Tennessee (DOE/OR/01-2322&D1)

The Tennessee Department of Environment and Conservation (TDEC), Division of Remediation Oak Ridge Office (DoR-ORO), has reviewed the above referenced submittal pursuant to the Federal Facility Agreement (FFA) for the Oak Ridge Reservation (ORR). The subject document is not approved pending resolution of the issues associated with the *Focused Feasibility Study (FFS) for Water Management for the Disposal of CERCLA Waste on the Oak Ridge Reservation*.

Background

Over the history of the Environmental Management Waste Management Facility (EMWMF) operations, effective water management has been a challenge at the site. In 2014, the FFA parties agreed to evaluate options for the management of leachate and contact water for CERCLA waste disposed on the ORR at both the EMWMF and the proposed Environmental Management Disposal Facility (EMDF). In July 2015, Department of Energy (DOE) submitted the initial version of the *Focused Feasibility Study (FFS) for Water Management for the Disposal of CERCLA Waste on the Oak Ridge Reservation (DOE/OR/01-2664&D1)*. The tri-parties followed the FFA comment and comment response process with a D2 FFS being submitted to EPA and TDEC in February 2016. TDEC was not satisfied DOE had addressed comments regarding water management,

17 OCT 30 PM 2:32

RECEIVED
NOV 13 2017

BY: DOE/C

RECEIVED NOV 06 2017

Mr. John Michael Japp
Page 2
October 25, 2017

ARAR's, and discharge limits. Therefore, TDEC's comment letter on the D2 FFS (the latest letter by TDEC on the FFS dated March 31, 2016) placed the document in informal dispute. Issues concerning ARAR's and discharge limits are still unresolved. The FFS has not been finalized nor has an alternate path forward been established.

Current Status

In a letter dated July 14, 2017, DOE submitted an extension request on the subject ESD for water management to both EPA and TDEC. The request acknowledged the need *"to resolve issues associated with radiological discharge limits and ARAR's"* and further went on to describe the strategy of continuing communication of project status with the project team and schedule meetings to discuss the radiological discharge limits. Because of TDEC's position that adequate progress has not been made to resolve the issues associated with the FFS that were identified on both the D1 and D2 drafts of the FFS in FY16, TDEC denied DOE's extension request (letter dated July 31, 2017) by citing the failure of DOE's proposed strategy in reaching comment resolution. Instead, the TDEC letter stated that the extension request would be re-evaluated when *"a more detailed project implementation strategy is developed"* and a definitive schedule is incorporated into the extension request for resolution of unresolved issues. In lieu of modifying the request for extension as suggested by TDEC, DOE submitted the D1 ESD to EPA and TDEC on August 31, 2017. Again, because the supporting FFS is a prerequisite for the subject ESD, progress must be made to finalize the study.

Related Issues

On August 8, 2017, TDEC submitted to DOE an audit report to document findings and recommendations regarding DOE Waste Lot 301.4. TDEC's concerns again centered around potential discharges of landfill wastewater to Bear Creek. WL 301.4 contained material from the West End Mercury Area (WEMA) at Y-12 and was disposed at the EMWMF on September 29, 2016.

The audit was initiated to determine whether DOE addressed mercury-bearing waste in accordance with restrictions stated in TDEC's letter dated June 13, 2016. Specifically, that letter restricted mercury-bearing waste disposal in the EMWMF until DOE provides assurance it will not discharge landfill wastewater to Bear Creek with a mercury concentration that exceeds the 51-nanograms-per-liter (ng/L) recreational ambient water quality criterion (AWQC) for organisms in TDEC Rule 0400-40-03-.03(4).

After receiving TDEC's audit report, DOE's Oak Ridge Office of Environmental Management (OREM) questioned whether DOE had discharged wastewater from EMWMF with mercury concentrations above the 51-ng/L limit. TDEC evaluated data available in OREIS as a follow-up to DOE's inquiry but notes that 2017 data for EMWMF

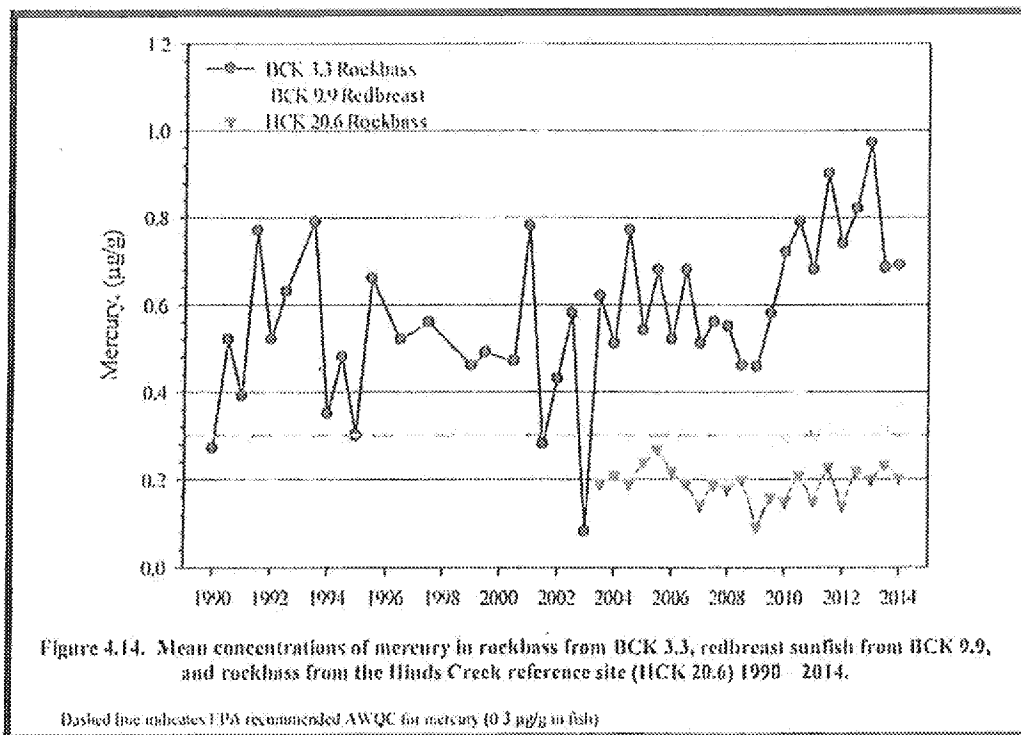
contact water, leachate, underdrain, and the sediment pond are not available yet. Furthermore, much of the data in OREIS for 2014 and before is unusable to determine whether the discharge affected mercury concentrations in fish downstream due to detection limits. Detection limits for mercury for the sediment pond and underdrain were above 51 ng/L during 2015 and 2016. Even with the detection limit issues, discharges greater than 51 ng/L have been detected in contact water. Specifically, mercury concentrations exceeded the limit for 9.0% (7) of the 78 usable contact water results (including 2 filtered samples), as follows.

DATE	SAMPLE	FILTERED	RESULT (ng/L)
12-16-2008	EMWCW1237	No	150J
12-29-2008	EMWCW1257	No	69J
01-08-2009	EMWCW1277	No	61J
07-14-2014	EMWCW4886	YES	59.3
08-13-2014	EMWCW4922	YES	72
04-08-2015	EMWCW5162	No	134
04-16-2015	EMWCW5173	No	60.9

Partially due to the identification of issues in the FFS, the FFA parties are engaged in an ongoing effort to improve the Sampling and Analysis Plan (SAP) for the EMWMF detection monitoring program. It is TDEC's expectation that implementation of the revised SAP will produce data of sufficient quality, including adequate detection limits, to support meaningful evaluation of landfill wastewater discharges. As part of the landfill wastewater discharge evaluation, future annual Phased Construction Completion Reports (PCCRs) for EMWMF would evaluate wastewater discharge for compliance with all Bear Creek designated uses specified in TDEC rule 0400-40-04.09. Irrespective of whether the waste lot in question released mercury to Bear Creek, TDEC asserts the importance of having processes in place to prevent future releases of mercury to Bear Creek.

Bear Creek and downstream surface water are classified for recreation (e.g. fishing and fish consumption) and other uses and impaired water quality in Bear Creek is not a new issue. Bear Creek continues to be included on TDEC's Division of Water Resources 2017 proposed final year 2016 303(d) list due to mercury and other pollutants. Figure 4.14 of the 2015 Oak Ridge Department of Energy Remediation Effectiveness Report, shown below, graphically represents mercury concentrations in fish (Rockbass at BCK 3.3 and Redbreast at BCK 9.9) downstream of EMWMF in Bear Creek over time. HCK 20.6 is a background reach used for comparing mercury concentrations in Rockbass.

This graph indicates something changed after 2009 causing an increase in concentrations of mercury in downstream Rockbass. The data show that four of eleven samples (36%) collected since 2009 are greater than or equal to the highest levels observed since 1990. This trend is disturbing in light of the fact that DOE proposes to construct another disposal facility in Bear Creek Valley that would potentially receive additional mercury bearing waste from demolition of facilities in the West End Mercury Area (WEMA) at Y-12.



The FFS supporting the subject ESD, associated meetings, and several TDEC comment letters dealt with the topic of mercury pollution in Bear Creek. Resolution of the informal dispute regarding the FFS for water management at EMWMF and the proposed EMDF will result in modifications of the EMWMF Record of Decision (ROD) which should document the necessary processes for ensured protection of Bear Creek and more effective management of landfill water.

Mr. John Michael Japp

Page 5

October 25, 2017

Further, on March 22, 2016, DOE Oak Ridge Environmental Management provided answers to the Oak Ridge City Council and Mayor on waste disposal in Bear Creek Valley and options for additional waste disposal. During that question and answer period, Mayor Gooch asked if DOE intended to dispose of mercury in Bear Creek Valley. DOE responded that disposal of mercury would be done in accordance with land disposal restrictions (LDRs), and DOE will not dispose of mercury in a manner which allows the mercury to leach. The City wanted public input regarding how mercury waste is addressed, and DOE discussed the application of a CERCLA decision process with public comment.

To demonstrate the seriousness of the commitment made on March 22, 2016 to the City of Oak Ridge, DOE must provide assurance the landfill will not discharge landfill wastewater to Bear Creek with a mercury concentration that exceeds the 51-nanograms-per-liter (ng/L). The commitment must show that DOE does not intend to build a treatment plant at OF 200 to reduce mercury pollution in East Fork Poplar Creek at Y-12 only to move material further down the valley and possibly release mercury to the surface waters of Bear Creek.

Path Forward

TDEC will not be issuing specific comments on the subject ESD at this time because of the unresolved issues of the disputed FFS that will likely result in changes to the ESD. Given that mercury has been and may be continuing to be discharged above allowable limits and mercury accumulation in fish from Bear Creek shows an increasing trend as opposed to decreasing, it is TDEC's position that DOE develop the following:

- 1) A detailed schedule for resolution of issues associated with water management at the EMWMF and proposed EMDF; and
- 2) Discharge limits for chemical and radiological contaminants that are consistent with CERCLA, DOE Orders and ARARs; and
- 3) A plan to identify and correct discharges of mercury above allowable limits.

The mercury discharge issue discussed above, along with other EMWMF water management issues previously identified by TDEC (e.g. valve closures, water levels, detection monitoring, etc.) are symptomatic as to the need of DOE to develop a comprehensive water management strategy for EMWMF and other proposed disposal and cleanup actions on the DOE ORR. TDEC encourages DOE to schedule meetings with the FFA parties to begin resolution of the issues associated with the incomplete FFS.

Mr. John Michael Japp
Page 6
October 25, 2017

Questions or comments concerning the contents of this letter should be directed to Howard Crabtree at (865) 220-6571.

Sincerely

A handwritten signature in black ink, appearing to read 'Randy C. Young', with a stylized flourish at the end.

Randy C. Young,
FFA Manager

xc Jon Richards, EPA
 Connie Jones, EPA
 Pat Halsey, DOE
 Amy Fitzgerald, ORCCA
 Pete Osborne, SSAB
 Ron Woody, ORRCA
 Traci Cofer, ORRCA